

# **EXHIBIT 1 – Autopsy Protocol**

## AUTOPSY PROTOCOL

PURDY, Thomas

2015-02925A

DATE OF DEATH: 10/8/2015 at 1205 Hours  
DATE OF AUTOPSY: 10/9/2015 at 0925 Hours  
CONSENT GRANTED BY: Medical Examiner/Coroner  
AUTOPSY PERFORMED AT: Washoe County Medical Examiner's Office  
INVESTIGATOR: Rudy Bein  
PATHOLOGIST: Laura D. Knight, M.D.

Washoe County  
Regional Medical Examiner's Office  
**NO THIRD PARTY  
DISSEMINATION PERMITTED**

### FINAL PATHOLOGICAL DIAGNOSES

- I. Excited delirium, with drug intoxication, physical exertion, violent struggle, and physical restraint.
  - A. Methamphetamine intoxication.
    1. Methamphetamine and its metabolite amphetamine, detected in antemortem hospital admission blood; see separate Toxicology Report.
      - a. Naloxone also detected (administered during resuscitative efforts).
    2. Evidence of intravenous drug abuse.
      - a. Suspected non-medical crusted venipuncture sites with ecchymosis, left antecubital fossa (arm); crusted venipuncture sites, right arm.
    3. Clinical history of urine drug screen positive for amphetamine(s), Ecstasy, and cannabinoids.
      - a. No Ecstasy (MDMA) or marijuana metabolites detected in blood (see A.1. above).
  - B. History compatible with excited delirium including psychomotor agitation, sweating, and paranoia prior to sudden collapse.
  - C. Physical exertion and physical restraint prior to becoming unresponsive, with prolonged struggle by decedent against physical restraints (including handcuffs and ankle RIPP restraint attached to handcuffs).
    1. Abrasions and soft tissue hemorrhages, wrists and ankles, compatible with use of physical restraints.
    2. Abrasions and contusions, upper and lower extremities.
    3. Abrasions, face, chest and back/shoulders.

## AUTOPSY PROTOCOL

PURDY, Thomas

2015-02925A

- D. Global anoxic-ischemic encephalopathy.
  - 1. See separate Neuropathology Report, with findings including: marked brain edema; neuronal necrosis; transtentorial cerebral herniation with associated infarction of medial temporal-occipital cerebrum; and central herniation of brainstem with associated Duret hemorrhage of pons.
  - 2. Clinical history of cardiopulmonary arrest (status post resuscitation) with subsequent diagnoses of acute respiratory failure, anoxic encephalopathy, lactic acidosis, rhabdomyolysis, and multi-organ failure (renal failure, elevated liver enzymes).
    - a. Death following withdrawal of ventilatory support under comfort care.
    - b. Patchy pneumonia documented at autopsy (see microscopic examination), following respiratory failure and mechanical ventilation.
- II. Focal atherosclerotic coronary artery disease, 40% stenosis, left anterior descending coronary artery.

### OPINION

Based on consideration of the circumstances surrounding this death, review of available medical history/records, review of investigative reports and other information, autopsy examination, toxicological analysis, and neuropathologic consultation, the death of Thomas Purdy is ascribed to complications of excited delirium due to drug (methamphetamine) intoxication. Physical exertion during subdual, and violent struggle under physical restraints while in police custody, are significant conditions contributing to death. Based on the circumstances surrounding the death, as currently known, the manner of death is homicide, due to the involvement of others in restraining the decedent.

"Homicide" as a manner of death (MOD) is a medical determination; it does not imply intent to kill or necessarily any criminal or negligent act, and can be defined simply as "death at the hands of another", or death associated with the involvement of others. MOD determination in this case is made particularly difficult by the fact that the decedent's own actions (including illicit stimulant drug use, refusal or inability to cooperate with arrest while intoxicated, and continued violent struggle/exertion) lead to his death. However, the decedent likely would not have died (had cardiopulmonary arrest, leading to death) at this particular time **but for** the restraint and associated struggle. Therefore, in light of the subdual and restraint applied by others, the MOD is best deemed homicide.

**AUTOPSY PROTOCOL**

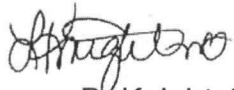
PURDY, Thomas

2015-02925A

"Excited delirium" refers to a syndrome in which an individual dies suddenly during or immediately following a period of agitation and combativeness, which is usually precipitated by the use of illicit stimulant drugs, or psychiatric illness with or without drug use. Autopsy examination in cases of excited delirium does not reveal any anatomic cause of death, such as trauma sufficient to explain the death or immediately lethal natural disease processes. In the majority of excited delirium cases, the terminal event involves medical personnel or law enforcement struggling with the individual to achieve physical restraint for treatment or arrest. During the struggle, or more typically shortly following the struggle, the individual becomes unresponsive and is found to be in cardiopulmonary arrest; even if resuscitated, the individual typically dies due to irreversible brain injury (hypoxic-ischemic encephalopathy). The terminal arrhythmia is typically asystole, pulseless electrical activity (as seen in this case), or bradycardia, and the individual may complain of what they perceive as "difficulty breathing" just prior to the cardiac event; ventricular dysrhythmias/fibrillation are less common. Deaths may occur during initial subdual, during transport, during arrest, during police booking or after being placed in a cell, or during medical evaluation following restraint/struggle. The proposed mechanism for sudden cardiopulmonary arrest following the struggle/restraint is classically described as cardiac arrhythmia due to increased circulating catecholamines (such as epinephrine) during a time termed the "period of post-exercise peril"; metabolic acidosis and hypokalemia (low blood potassium) after exertion are other proposed physiologic derangements that could lead to arrhythmia. The two most common substances associated with excited delirium are cocaine and methamphetamine, with PCP (phencyclidine) also sometimes identified. Newer designer drugs/stimulants (such as "bath salts") may also be implicated in some excited delirium cases. No such designer drugs were detected in this case.

## References:

- 1) DiMaio TG, DiMaio VJM. *Excited Delirium Syndrome, Cause of Death and Prevention*. CRC Press, Taylor & Francis Group. 2006.
- 2) Gill JR, Girela-Lopez E. Manner of Death for In-Custody Fatalities. *Academic Forensic Pathology*. 2015; 5(3): 402-213.
- 3) Graham MA. Investigation of Deaths Temporally Associated with Law Enforcement Apprehension. *Academic Forensic Pathology*. 2014; 4(3): 366-389.



Laura D. Knight, M.D.  
Deputy Chief Medical Examiner

12/21/2015

Date Signed

**AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

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An autopsy is performed on the body of Thomas Purdy, at the Washoe County Medical Examiner's Office, at Reno, Nevada on the 9th day of October 2015, commencing at 0925 hours.

**CIRCUMSTANCES OF DEATH**

Information in the following paragraphs is obtained from Medical Examiner's Office investigation reports, law enforcement investigation of this case as reported to Medical Examiner's Office staff, and review of surveillance and/or hand-held camera videos capturing events at the casino and jail. The decedent was a 38-year-old white male with a history of drug abuse who was discovered by security staff at the Peppermill Casino, seated/hiding between slot machines during the early morning hours of 10/4/2015. He was noted to be paranoid and agitated and led casino security staff on a foot chase that included attempting to hide under a car in the valet parking area at the casino. He was reportedly handcuffed and placed on the ground by security staff making a citizens' arrest for trespass after Mr. Purdy refused to leave the property.

Reno Police Department (RPD) responded to the Peppermill Casino and noted that the decedent was combative and resisting arrest, including kicking at officers. He was placed in RIPP restraints at his ankles, attached to handcuffs at his wrists, and was transported to the Washoe County Sheriff's Office (WCSO) jail. On arrival there he remained uncooperative/combatative and continued to struggle against restraints (having to be placed in a "person mover" tarp with handles while being transferred from a police vehicle to the sally port, and from the sally port to a holding cell). He continued to resist and struggle against the restraints while jail personnel were attempting to remove them. Mr. Purdy was excessively sweaty, leaving wet marks on the rubber flooring in the sally port (video); the officer transporting him to the jail stated that he had sweated excessively in the back of the transport vehicle, also.

The RIPP restraints and handcuffs were successfully removed while the decedent was placed prone on the floor in the cell. Deputies then exited the cell, while a supervising sergeant continued to observe the decedent through the window in the door. A short time later (reportedly less than one minute), staff re-entered the cell to evaluate Mr. Purdy, who had remained unresponsive. Jail medical personnel initiated cardiopulmonary resuscitation. 911 was called and emergency medical personnel responded to the jail and took charge of resuscitative efforts. The decedent was intubated and transported by ambulance to Renown Regional Medical Center. He was admitted to the Intensive Care Unit, requiring mechanical ventilation, and subsequently was placed on comfort care. On 10/8/2015, he was extubated and expired a short time thereafter.

The Sparks Police Department (SPD) conducted an independent investigation at the request of the two involved law enforcement agencies (RPD and WCSO). SPD indicated that in the course of their investigation, an eyewitness (a "friend" of decedent, staying with him and others in a casino hotel room) stated that she saw the decedent

**AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

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inject two syringes of methamphetamine intravenously, sometime on the evening of 10/3/2015 (prior to the incident with security at the casino).

Medical records from Renown Regional Medical Center, the Washoe County Jail, and the ambulance service (REMSA) are reviewed, and information in the following paragraph is based on those records. Jail medical personnel responded immediately after Mr. Purdy was noted to be unresponsive but with pulse and breathing initially. Subsequently, a pulse could not be found, and they started cardiopulmonary resuscitation (CPR) with chest compressions prior to the arrival of REMSA. Mr. Purdy was noted to have pulseless electrical activity upon arrival of emergency medical personnel, and responded to epinephrine during CPR, with spontaneous return of circulation (and a rhythm of supraventricular tachycardia). Emergency medical personnel recorded the decedent's subjective skin temperature as "cool"; no measured temperature was recorded by jail medical personnel or REMSA. He was intubated and transported to Renown Regional Medical Center, where he arrived with a cardiac rhythm of sinus tachycardia. In his "history of present illness" on hospital admission, history was noted that the decedent had been "drenched" (in sweat) when apprehended. He was diagnosed with ventilator-dependent respiratory failure with severe acidosis. Initial radiologic studies included maxillofacial and head CT scans, which showed no trauma or other significant findings. He had multi-organ failure with renal failure and elevated liver enzymes by laboratory evaluation, as well as rhabdomyolysis, lactic acidosis/metabolic acidosis, and was diagnosed with complications of his cardiac arrest (anoxic brain injury, acute respiratory failure), thought clinically to be associated with drug intoxication. A urine drug screen at the hospital was positive for cannabinoids, amphetamine(s), and ecstasy; blood alcohol testing was negative. Seizure activity (myoclonic jerking) was present, related to anoxic brain injury. He subsequently expired on 10/8/15 at 1205 hours under comfort care after withdrawal of ventilatory support.

**IDENTIFICATION**

The body is received in a sealed body bag, bearing a Medical Examiner's tag with the decedent's name and Medical Examiner case number. Identification of the body at the time of examination is made by way of a red Medical Examiner's band affixed to the right lower extremity, bearing the decedent's name and a Medical Examiner case number. A hospital identification band is around the left wrist bearing the medical records alias "M-FIFTY-NINE, ENTRY" and a medical record number and admission date of 10/4/2015. Subsequent scientific identification is made by way of fingerprint comparison.

**AUTOPSY ASSISTANTS**

Rudy Bein and Michael Bergman.

## **AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

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### XRAYS

Full body radiographs show no obvious fractures of the long bones, calvarium, spine, ribs, or pelvis. Radiopaque dental restorations and artifacts of medical therapy are present. There are no radiopaque projectiles.

### CLOTHING

The body is received unclad. No clothing accompanies the body.

### EVIDENCE OF MEDICAL THERAPY

The following medical and therapeutic devices and/or marks are present and appropriately placed on the body:

1. An oral endotracheal tube with associated holder with adhesive pads on the cheeks.
2. A nasogastric tube entering the left naris.
3. A triple lumen intravascular catheter on the lateral right neck.
4. Two cardiac tracing tabs on the superior shoulders.
5. Two cardiac tracing tabs on the anterior chest.
6. Two cardiac tracing tabs on the anterior lower abdomen.
7. A gauze and tape bandage on the right antecubital fossa with blood staining overlying a minute, non-crusted venipuncture with scant pink ecchymosis.
8. A foley catheter entering the urethra with attached urine collection bag containing approximately 30 mL of yellow urine.
9. A rectal temperature probe.
10. Crusted venipunctures with ecchymosis on the left antecubital fossa, without any associated bandages or catheters, further described below.

### GENERAL EXTERNAL EXAMINATION

The body is that of a well-developed, somewhat thin adult white male, who weighs 139 pounds, measures 68 inches in length, and appears compatible with the reported age of 38 years. The body mass index is 21 kg/m<sup>2</sup>. Paper bags covering the hands are removed at the beginning of the examination, during evidence collection.

The refrigerated, unembalmed body is cool to the touch. Rigor mortis is well-established in the jaw, hands, knees and feet, and is minimal in the elbows. Cutis anserina is noted over the thorax and extremities. Mostly fixed, pink-purple lividity extends over the posterior aspects of the body, with the exception of areas exposed to pressure.

The scalp hair is dark blond and measures up to 2 inches in length over the crown. The irides are blue and the pupils are round and equal. The corneae are transparent. The sclerae are white and the conjunctivae are clear. A rare petechial hemorrhage is

**AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

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noted on the lower left palpebral conjunctiva. No petechial hemorrhages are on the sclerae, facial skin, or oral labial mucosae. The exterior of the nose is atraumatic and there are no palpable fractures of the nasal skeleton. Injuries on the forehead and face are described below. The decedent bears a short brown/blond mustache and short beard growth. The natural teeth are in fair condition. The upper right central incisor is remotely absent. The upper lip shows dried crusted secretions. The oral labial mucosae show no injuries, and the frenula are intact. The ears are normally developed and atraumatic, with a remote piercing mark of the left earlobe.

The neck is symmetrical and the trachea is palpable in the midline. No scars, masses, or cutaneous injuries are noted on the neck aside from a puncture with associated ecchymosis on the lateral right neck associated with the previously described vascular catheter.

The thorax is well-developed and symmetrical, with a normal anterior-posterior dimension. The abdomen is nonprotuberant. The external genitalia are those of a normal adult male. The testes are palpable within the scrotal sac. There is mild scrotal edema. The back is unremarkable aside from scars and injuries described below. The anus is without trauma.

The upper and lower extremities are well-formed and symmetrical; all digits are present. The fingernails are lightly soiled but relatively trimmed, as are the toenails. The hands are mildly edematous. Injuries of the extremities are described below.

Identifying marks and scars include a 1 1/4 inch hypopigmented linear scar on the anterolateral left knee, and two hypopigmented linear scars up to 2 inches each on the lateral right chest, one with prominent healed suture marks. Over the mid to lower back are numerous hypopigmented linear to curvilinear scars in an oblique fashion from the lower right to mid left back ranging from 3/4 to 4 1/2 inches in length.

**EVIDENCE OF INJURY****HEAD AND NECK:**

FACE: Lateral to the right eye is a 1 1/8 by up to 1 inch patchy area of brown crusted abrasion. Just superior to the lateral aspect of the right eyebrow is a similar crusted brown abrasion measuring 3/8 x 1/4 inch. Crusted brown abrasion is on the midline anterior forehead in a patchy distribution over 1 x 1/2 inch area. On the anterior left forehead and anterolateral left forehead, are three additional areas of very superficial, crusted patchy abrasions up to 5/8 inch in greatest dimension. A 3/4 x 1/4 inch area of patchy brown crusted abrasion is at the left preauricular area just anterior to the hairline. Punctate brown crusted abrasion is in a very scant distribution on the right cheek over a 1/2 inch area. Along the right and left jaw lines are areas of patchy brown crusted abrasion ranging from 1 1/4 inch on the right to 2 3/4 inches in length by up to 3/8 inch in width on the left.

## AUTOPSY PROTOCOL

PURDY, Thomas

2015-02925A

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**SUBSCALP:** Reflection of the scalp reveals no discrete subscalpular or subgaleal contusions. A focal 6 cm area of patchy thin red congestion is noted on the lateral right parietal subscalp, less than 0.1 cm in thickness.

**INTERNAL NECK:** A detailed layer-wise dissection of the strap musculature and soft tissues and vasculature of the anterior neck reveals a 2 cm patchy area of hemorrhage at the superficial aspect of the right sternocleidomastoid muscle, in association with the vascular catheter previously described on the lateral right neck.

The hyoid bone, larynx and thyroid cartilage are intact. The hyoid bone is non-fused. No periosteal hemorrhage is on the hyoid bone or larynx. The cervical spine is stable to palpation, free of hemorrhage, and shows no fracture.

### THORAX AND ABDOMEN:

**CHEST:** A 3/4 by less than 1/16 inch linear, red-brown crusted abrasion is on the lateral right lower chest.

**BACK AND SHOULDERS:** On the right upper back to posterior right shoulder are six areas of red crusted or granulated abrasions up to 1/2 inch in greatest dimension. Extending directly from this area on the superior right shoulder are three areas of indistinct patchy brown crusted abrasions up to 3/4 each in greatest dimension. On the superior posterior aspect of the left shoulder is a 3/8 x 1/4 inch crusted red brown abrasion. On the right lower back is a 1/2 x 3/16 inch area of very superficial slightly crusted light red abrasion. On the left to mid lower back, is an obliquely-oriented 6 x 1/16 inch curvilinear purple-black contusion.

**SPECIAL DISSECTION (BACK):** A flaying dissection of the skin/soft tissues of the posterior aspect of the body, exposing the musculature of the back, buttocks and posterior thighs, reveals no discrete areas of hemorrhage.

### UPPER EXTREMITIES:

Abrasions on the shoulders are previously described above, in continuity with injuries of the back.

**LEFT:** A crusted, mostly healed, 5/16 x 1/16 inch brown abrasion is on the lateral distal left arm. Crusted abrasions are on the dorsal left hand proximally and dorsal left ulnar wrist up to 5/8 x 1/4 inch in greatest dimension, having brown to red-brown areas of crusting and surrounding hypopigmentation and puckering of the skin. On the dorsal left thumb, overlying the metacarpophalangeal joint is a crusted 3/16 inch light brown abrasion. On the lateral radial aspect of the left wrist are four linear crusted to mostly healed abrasions ranging from 3/16 to 1/2 inch in length, and up to 1/8 inch in width. No injuries are of the left elbow.

**AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

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On the left antecubital fossa are three crusted puncture marks overlying a vein, with surrounding scant pink ecchymosis. A 3/8 x 1/16 inch linear pink, mostly healed abrasion is at the distal left antecubital fossa.

RIGHT: An indistinct yellow contusion up to 4 inches in greatest dimension is on the lateral right shoulder. Two crusted puncture marks overlie a vein on the anterior right upper and mid aspect of the right arm. On the dorsal distal aspect of the right elbow is a 1/16 inch crusted abrasion and located dorsal lateral to this on the proximal right forearm is a crusted brown 3/16 x 1/16 inch brown abrasion. On the dorsal ulnar to medial aspect of the right wrist is a cluster of five crusted brown abrasions ranging from 1/8 inch to 3/8 x 1/16 inch. A very superficial crusted brown abrasion is on the dorsal radial to lateral aspect of the right wrist measuring 2 inches in length by up to 3/16 inch in width.

SPECIAL DISSECTION (WRISTS): Incisions on the medial and lateral aspects of the wrists (ulnar and radial aspects, respectively) reveals dense, confluent soft tissue hemorrhage at the radial (lateral) aspects of the left and right wrists/distal forearms, up to 6 cm in greatest dimension. No significant hemorrhage is in the soft tissue at the ulnar (medial) wrists.

LOWER EXTREMITIES:

LEFT: Two areas of orange-brown, crusted, irregular abrasion ranging from 1/4 to 3/4 inch in greatest dimension are on the anteromedial left knee. A total of four crusted brown abrasions are on the anterior distal left leg ranging from 3/8 to 1/16 inch and up to 5/8 x 1/2 inch. On the left popliteal fossa is a curvilinear area of superficial crusted red-brown abrasion measuring 2 by up to 1/2 inches in greatest dimension. At the lateral aspect of the distal left leg, are two punctate to 1/8 inch areas of purple contusion.

RIGHT: On the anterior superior right knee, are two crusted red abrasions 3/8 inch in greatest dimension. The more medial of these is surrounded by patchy brown crusted abrasion over a 2 x 1 1/2 inch area. On the distal right knee medially and anterolaterally, are a total of four crusted red brown abrasions ranging from 1/8 to 1/2 inch in greatest dimension.

SPECIAL DISSECTION (ANKLES): Incisions over the medial and lateral malleoli of the ankles reveal patchy, mild hemorrhage in the soft tissue over the each of the lateral malleoli, and no hemorrhage at the medial malleoli.

GENERAL INTERNAL EXAMINATION

BODY CAVITIES: Fibrous adhesions are in the right pleural cavity. All thoracic and abdominal organs are present in their usual anatomic relationships. The left pleural cavity contains 200 mL of serosanguinous fluid.

**AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

**CARDIOVASCULAR SYSTEM:** The heart weighs 330 grams. The pericardial surfaces are smooth and glistening, without adhesions. A small amount of straw-colored fluid is within the pericardial sac. No epicardial petechiae are seen. The coronary arteries arise normally and follow an anatomic distribution of co-dominance with the left circumflex of large caliber, and a relatively small caliber right coronary artery (0.2 cm diameter proximally). There are no thromboses. The left anterior descending coronary artery shows focal atheroma in its proximal segment with 40% luminal stenosis. The left circumflex and right coronary arteries show no significant atherosclerosis. The myocardium is dark red-brown and firm without gross areas of pallor, hyperemia, or fibrosis. The left ventricular wall measures 1.5 cm in thickness at a level approximately 2 cm inferior to the atrioventricular valve annulus; the right ventricular wall measures 0.3 cm, and the interventricular septum measures 1.5 cm. No associated dilation is of the atria or ventricles. The atrial and ventricular septa are intact. The endocardial surfaces are smooth and glistening. The cardiac valves are in the usual anatomic positions and are neither dilated nor stenotic. The great vessels arise normally and are patent. The aorta has a normal course and caliber and shows fatty streaking.

**RESPIRATORY SYSTEM:** The right and left lungs weigh 720 and 800 grams, respectively. The pleural surfaces are smooth and glistening, with moderate anthracotic discoloration. The upper airways are clear of debris and foreign material, and the mucosal surfaces appear normal. The pulmonary parenchyma is dark red-purple and congested, exuding moderate amounts of frothy fluid. No focal lesions are noted. The pulmonary arteries are patent without thromboemboli or significant atherosclerosis. There is no saddle embolus on in situ examination of the pulmonary trunk.

**LIVER AND BILIARY SYSTEM:** The liver weighs 2210 grams. The capsule is smooth, glistening and intact. The hepatic parenchyma is dark red-brown and moderately congested, with no focal lesions. The gallbladder contains viscid yellow-brown bile without calculi.

**GASTROINTESTINAL TRACT:** The esophagus is lined by gray-white mucosa without varices, tears, or ulcerations. The gastric mucosa is arranged in the usual rugal folds, without ulcerations or hemorrhages. The stomach lumen contains 700 mL of yellow liquid with yellow particulate material without identifiable foreign objects. The small and large bowels demonstrate a normal course and caliber and are grossly unremarkable. The appendix is present. The pancreas has a normal, tan lobulated appearance, and the ducts are clear.

**GENITOURINARY TRACT:** The right and left kidneys weigh 180 and 210 grams, respectively. The capsules strip with ease from the underlying red-brown, smooth cortical surfaces. The cortex and medulla are well demarcated, and without focal lesions. The calyces, pelves and ureters are without gross abnormalities. The urinary bladder contains no urine, with a Foley catheter in place, and the mucosa is grey-tan and smooth. The prostate gland is of appropriate size with firm, homogeneous

**AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

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parenchyma.

ADRENAL GLANDS: The adrenal glands demonstrate an orange-yellow cortex, which is clearly demarcated from the underlying red-brown medulla. No hemorrhage or masses are evident.

SPLEEN AND LYMPHATICS: The spleen weighs 200 grams, and has a smooth intact surface covering red-purple, moderately firm parenchyma. The splenic lymphoid follicles are not grossly prominent. The regional lymph nodes are not enlarged.

HEAD/CENTRAL NERVOUS SYSTEM: The brain weighs 1,310 grams. Reflection of the scalp anteriorly reveals no discrete subgaleal or subscalpular contusions, and a focal thin area of congestion previously described. The calvarium (skull) is intact and without fractures. The dura mater is intact. The leptomeninges are thin and transparent. There is no epidural, subdural, or subarachnoid hemorrhage. The cerebral hemispheres are symmetrical and show diffuse gyral widening and flattening over the cerebral convexities in keeping with moderate to severe cerebral edema. The brain is preserved whole in formalin for further dissection by a Neuropathologist. The spinal cord is not examined. There is no evidence of vertebral injuries.

NECK: Examination of the soft tissues of the anterior neck via a detailed layerwise dissection reveals findings previously described. The hyoid bone and thyroid cartilage are intact. The hyoid bone is non-fused. The thyroid gland is unremarkable. The larynx at the level of the vocal folds is patent and free of obstructing lesions, and the epiglottis is unremarkable. The tongue shows no areas of hemorrhage on sectioning.

MUSCULOSKELETAL SYSTEM: Aside from soft tissue findings previously described, the bony framework, supporting musculature, and soft tissues are not unusual. No acute bony fractures are identified. The vertebral column is without significant kyphosis or scoliosis; the cervical spinal column is stable on internal palpation. The anterior paravertebral musculature and prevertebral fascia are without hemorrhage.

SPECIMENS AND/OR EVIDENCE:

The following items are collected and preserved:

- 1) Peripheral blood.
- 2) Central blood.
- 3) Hospital admission blood and urine specimens.
- 4) Autopsy-collected catheter urine.
- 5) Gastric contents.
- 6) Vitreous fluid.
- 7) Sections of all major internal organs in formalin.
- 8) Sections of select organs and/or tissues for microscopic examination.
- 9) The brain and dura mater in formalin.

**AUTOPSY PROTOCOL**

PURDY, Thomas

2015-02925A

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- 10) Two blood spot cards for DNA.
- 11) Two scalp hair samples.
- 12) Fingerprint cards.
- 13) Palm prints.
- 14) Nasal, oral, rectal and penile swabs.
- 15) A sample of axillary hair.
- 16) A sample of pubic hair.
- 17) Left and right fingernail clippings.
- 18) Left and right hand bags.
- 19) Body bag and body bag seal.

For a complete listing of evidentiary items, see separate evidence inventory/Chain of Custody forms.

**MICROSCOPIC EXAMINATION**

Heart (slide 1 left and right ventricles; interventricular septum slide 2): The sections of the heart show no ischemic or inflammatory changes. The left ventricle and interventricular septum each show some scattered, mild myocyte nuclear enlargement/elongation.

Liver (slide 2): The liver shows a minimal mixed inflammatory infiltrate in the portal triads/periportal areas. There is focal sectioning artifact. There is no appreciable steatosis.

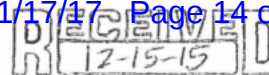
Kidney (slide 3): Mild hyaline arteriolosclerosis is appreciated in many of the arterioles examined; there is no significant accompanying glomerular sclerosis. Rare foci of mild lymphocytic inflammation are at the superficial cortex. There is no polarizable crystalline material.

Lungs (slide 4): These sections of the lungs show patchy pneumonia, with a patchy intraalveolar mixed inflammatory infiltrate including abundant neutrophils and macrophages. There is no obvious aspirated foreign material. Dusty brown-black pigment-laden macrophages are also seen in areas. Intrabronchial/intrabronchiolar pooled collections of neutrophils and mucus are seen. Prominent perivascular lymphocytic collections are noted. No foreign material is appreciated in the sections when examined under polarized light.

**TOXICOLOGY (NMS LABS)**

Toxicology results are provided separately.

Fixed tissue specimens will be retained for 5 years after date of autopsy; routine toxicology and laboratory specimens will be retained for 2 years unless specifically requested otherwise.



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**OFFICE OF THE CHIEF MEDICAL EXAMINER  
BOARD OF MEDICOLEGAL INVESTIGATIONS**

**NEUROPATHOLOGY REPORT**

OCME Case Identification # NP2015-008  
Washoe County Medical Examiner's Office# 2015-2925  
Patient Name: Thomas Purdy  
Date of Birth: [REDACTED]  
Date of Death: 10/8/2015

**CLINICAL HISTORY**

The patient is a 38 year-old man who reportedly expired in the hospital with multisystem organ failure four days after admission. He had reportedly been discovered unresponsive in jail following a period of agitation and physical restraint. Autopsy revealed scattered abrasions and contusions, mild coronary artery atherosclerosis, and an edematous brain.

**NEUROPATHOLOGIC GROSS DESCRIPTION**

The brain is received with a generous portion of detached dura mater of the cerebral convexities. Its surfaces are unremarkable aside from an adherent 1 cm-diameter rusty red/brown focus of epidural blood over the right cerebral convexity. The dural venous sinuses are patent and contain only post-mortem blood clot. The post-fixation weight of the brain is 1,250 grams. The leptomeninges over the convexities of the brain are thin and translucent and show no significant venous congestion. The cerebral cortex shows the normal pattern of convolutions. The brain is generally pale and soft. There is no atrophy of the cerebral hemispheres. Marked generalized edema is appreciated. The uncinate processes are symmetrical with bilateral 0.3 cm notching without evident necrosis or hemorrhage. There is bilateral notching of the cerebellar tonsils (1.2 cm right; 1.2 cm left) without evident hemorrhage. The vessels at the base of the brain are intact and symmetric without atherosclerotic changes. There is no evidence of a saccular or fusiform aneurysm. The cranial nerves are intact.

Sequential coronal sections of the cerebrum display a well-defined gray/white matter junction with patchy dusky gray discoloration of the cortex, most notable at depths of sulci. The centrum semiovale, corpus callosum, and corpus striatum are unremarkable. There is no atrophy of the hippocampus or entorhinal cortex. The amygdalae are unremarkable. There is bilateral intraparenchymal hemorrhage in the cortex of the inferior-medial temporal-occipital lobe region at the level of the posterior hippocampus and splenium of corpus callosum, more prominent on the right. The ventricular system is symmetric and not dilated. At the level of the mammillary bodies the right and left lateral ventricles are slit-like, and the transverse diameter of the 3<sup>rd</sup> ventricle is 0.1 cm.

Sequential transverse sections of the brainstem perpendicular to its long axis display a normally pigmented substantia nigra and locus ceruleus. There is notable cranial-caudal elongation of the midbrain and pons. The basis pedunculi are symmetrical. The basis pontis show focal 4 x 2 mm purple intraparenchymal hemorrhage in the center of the rostral pons. The medulla displays normal inferior olives and symmetrical pyramids.

OCME Case Identification # NP2015-008  
Washoe County Medical Examiner's Office# 2015-2925  
Patient Name: Thomas Purdy  
Page 3 of 3

Sections of the cerebellum show moderate white matter vacuolization. There is no significant decrease in white matter volume. The dentate nucleus displays normal organization without significant neuronal loss. There is conglutination artifact of the inner granular cell layer of the cerebellar cortex. There is marked loss of Purkinje neurons. Frequent remaining Purkinje neurons are hypereosinophilic with pyknotic nuclei.

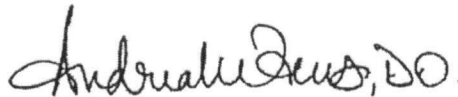
The pituitary gland demonstrates normal acinar cytoarchitecture comprised of a mixture of amphophilic and eosinophilic polygonal cells. There is notable vascular congestion within the pituitary gland.

#### NEUROPATHOLOGIC DIAGNOSES

- I. Anoxic-ischemic encephalopathy
  - a. Marked generalized brain edema and widespread acute neuronal necrosis
    - i. Bilateral temporal-occipital lobe transtentorial herniation with early infarction
    - ii. Central herniation of brainstem
      - 1. Duret hemorrhage, rostral pons
- II. Focal epidural hemorrhage, right cerebral convexity

#### COMMENT

The histopathologic changes seen indicate global anoxic-ischemic encephalopathy with diffuse involvement of the hippocampus, neocortex, and cerebellum. Global anoxic-ischemic changes in the brain occur with decreased cerebral perfusion, often take several hours of survival after the insult before histological features will become evident, and can persist for up to approximately 2 weeks. Widespread acute neuronal necrosis is evident throughout the cerebral cortex, brainstem, and cerebellum in the histologic sections examined, indicating an anoxic-ischemic insult at least 6-12 hours removed. There is early infarction with neutrophilic infiltration of the medial temporal-occipital lobe due to marked brain edema and transtentorial herniation. Emigration of polymorphonuclear leukocytes may be seen 24-48 hours after injury, or thereafter. Notably, infiltration by foamy macrophages is not identified in the histologic sections submitted. Taken together, the histopathologic features in this case indicate likely onset of global anoxic-ischemic injury two to four days prior to death.



Andrea L. Wiens, DO

Date signed: December 11, 2015

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Robert A. Middleberg, PhD, F-ABFT, DABCC-TC, Laboratory Director

**Toxicology Report****Report Issued** 10/26/2015 21:58**To: 10324**

Washoe County Medical Examiner & Coroner  
Attn: Dr. Ellen G.I. Clark  
10 Kirman Ave  
Reno, NV 89502

**Patient Name** PURDY, THOMAS**Patient ID** 2015-02925**Chain** 11900788**Age 38 Y** **DOB** [REDACTED]**Gender** Male**Workorder** 15307528**Page 1 of 4****Positive Findings:**

| <u>Compound</u> | <u>Result</u> | <u>Units</u> | <u>Matrix Source</u>              |
|-----------------|---------------|--------------|-----------------------------------|
| Naloxone        | Positive      | ng/mL        | 001 - Antemortem Peripheral Blood |
| Amphetamine     | 98            | ng/mL        | 001 - Antemortem Peripheral Blood |
| Methamphetamine | 1900          | ng/mL        | 001 - Antemortem Peripheral Blood |

See Detailed Findings section for additional information

**Testing Requested:**

| <u>Analysis Code</u> | <u>Description</u>                                 |
|----------------------|--|
| 8052B                | Postmortem Toxicology - Expanded, Blood (Forensic) |

**Specimens Received:**

| <u>ID</u> | <u>Tube/Container</u> | <u>Volume/<br/>Mass</u> | <u>Collection<br/>Date/Time</u> | <u>Matrix Source</u>        | <u>Miscellaneous<br/>Information</u> |
|-----------|-----------------------|-------------------------|---------------------------------|-----------------------------|--------------------------------------|
| 001       | Lavender Vial         | 3.75 mL                 | 10/04/2015 04:05                | Antemortem Peripheral Blood |                                      |
| 002       | Gold Vial             | 1.5 mL                  | 10/04/2015 04:05                | Antemortem Serum or Plasma  |                                      |
| 003       | Green Vial            | 1.25 mL                 | 10/04/2015 04:05                | Antemortem Serum or Plasma  |                                      |
| 004       | Clear Tube            | 23 mL                   | 10/04/2015                      | Antemortem Urine            | TIME ON SAMPLE 0605                  |

All sample volumes/weights are approximations.

Specimens received on 10/13/2015.

**Detailed Findings:**

| Analysis and Comments | Result   | Units | Rpt. Limit | Specimen Source                   | Analysis By |
|-----------------------|----------|-------|------------|-----------------------------------|-------------|
| Naloxone              | Positive | ng/mL | 1.0        | 001 - Antemortem Peripheral Blood | LC/TOF-MS   |
| Amphetamine           | 98       | ng/mL | 5.0        | 001 - Antemortem Peripheral Blood | LC-MS/MS    |
| Methamphetamine       | 1900     | ng/mL | 50         | 001 - Antemortem Peripheral Blood | LC-MS/MS    |

Other than the above findings, examination of the specimen(s) submitted did not reveal any positive findings of toxicological significance by procedures outlined in the accompanying Analysis Summary.

**Reference Comments:**

1. Amphetamine (Benzphetamine Metabolite) - Antemortem Peripheral Blood:

Amphetamine (Adderall, Dexedrine) is a Schedule II phenethylamine CNS-stimulant. It is used therapeutically in the treatment of narcolepsy and obesity and also in the treatment of hyperactivity in children. Amphetamine has a high potential for abuse. When used in therapy, initial doses should be small and increased gradually. In the treatment of narcolepsy, amphetamine is administered in daily divided doses of 5 to 60 mg. For obesity and children with attention deficits, usual dosage is 5 or 10 mg daily.

Following a single oral dose of 10 mg amphetamine sulfate, a reported peak blood concentration of 40 ng/mL was reached at 2 hr. Following a single 30 mg dose to adults, an average peak plasma level of 100 ng/mL was reported at 2.5 hr. A steady-state blood level of 2000 - 3000 ng/mL was reported in an addict who consumed approximately 1000 mg daily.

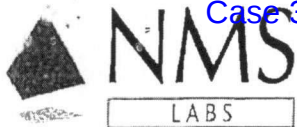
Overdose with amphetamine can produce restlessness, hyperthermia, convulsions, hallucinations, respiratory and/or cardiac failure. Reported blood concentrations in amphetamine-related fatalities ranged from 500 - 41000 ng/mL (mean, 9000 ng/mL). Amphetamine is also a metabolite of methamphetamine, benzphetamine and selegiline.

2. Methamphetamine (Benzphetamine Metabolite) - Antemortem Peripheral Blood:

d-methamphetamine is a DEA schedule II stimulant drug capable of causing hallucinations, aggressive behavior and irrational reactions. Chemically, there are two forms (isomers) of methamphetamine: l- and d-methamphetamine. The l-isomer is used in non-prescription inhalers as a decongestant and has weak CNS-stimulatory activity. The d-isomer has been used therapeutically as an anorexigenic agent in the treatment of obesity and has potent CNS-, cardiac- and circulatory-stimulatory activity. Amphetamine and norephedrine (phenylpropanolamine) are metabolites of methamphetamine. d-methamphetamine is an abused substance because of its stimulatory effects and is also addictive.

A peak blood concentration of methamphetamine of 20 ng/mL was reported at 2.5 hr after an oral dosage of 12.5 mg. Blood levels of 200 - 600 ng/mL have been reported in methamphetamine abusers who exhibited violent and irrational behavior. High doses of methamphetamine can also elicit restlessness, confusion, hallucinations, circulatory collapse and convulsions.

\*In this case, the level of methamphetamine determined has not been differentiated according to its isomeric forms. Differentiation of the isomers of methamphetamine is available upon request.



CONFIDENTIAL  
Workorder 15307528  
Chain 11900788  
Patient ID 2015-02925

Page 3 of 4

### Reference Comments:

#### 3. Naloxone (Narcan®) - Antemortem Peripheral Blood:

Naloxone is a narcotic antagonist used to counter the central nervous system depression effects of opioids, including respiratory depression. It is also used for the diagnosis of suspected acute opioid overdose. Naloxone is available as a 0.4 mg/mL solution of the hydrochloride for parenteral injection.

Naloxone is also available in combination with buprenorphine (Suboxone®) for the treatment of opioid dependence. This combination is available in tablets of 2 mg buprenorphine with 0.5 mg naloxone or 8 mg buprenorphine with 2 mg of naloxone for sublingual administration.

The reported qualitative result for this substance was based upon a single analysis only. If confirmation testing is required please contact the laboratory.

Unless alternate arrangements are made by you, the remainder of the submitted specimens will be discarded two (2) years from the date of this report; and generated data will be discarded five (5) years from the date the analyses were performed.

Workorder 15307528 was electronically signed on 10/26/2015 21:19 by:

William H. Anderson, Ph.D., F-ABFT  
Forensic Toxicologist

### Analysis Summary and Reporting Limits:

All of the following tests were performed for this case. For each test, the compounds listed were included in the scope. The Reporting Limit listed for each compound represents the lowest concentration of the compound that will be reported as being positive. If the compound is listed as None Detected, it is not present above the Reporting Limit. Please refer to the Positive Findings section of the report for those compounds that were identified as being present.

#### Acode 50013B - Cannabinoids Confirmation, Blood (Forensic) - Antemortem Peripheral Blood

-Analysis by High Performance Liquid Chromatography/  
TandemMass Spectrometry (LC-MS/MS) for:

| <u>Compound</u>        | <u>Rpt. Limit</u> | <u>Compound</u> | <u>Rpt. Limit</u> |
|------------------------|-------------------|-----------------|-------------------|
| 11-Hydroxy Delta-9 THC | 1.0 ng/mL         | Delta-9 THC     | 0.50 ng/mL        |
| Delta-9 Carboxy THC    | 5.0 ng/mL         |                 |                   |

#### Acode 52409B - Amphetamines Confirmation, Blood (Forensic) - Antemortem Peripheral Blood

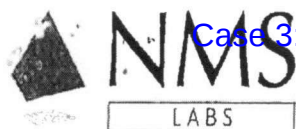
-Analysis by High Performance Liquid Chromatography/  
TandemMass Spectrometry (LC-MS/MS) for:

| <u>Compound</u>    | <u>Rpt. Limit</u> | <u>Compound</u>     | <u>Rpt. Limit</u> |
|--------------------|-------------------|---------------------|-------------------|
| Amphetamine        | 5.0 ng/mL         | Phendimetrazine     | 10 ng/mL          |
| Ephedrine          | 5.0 ng/mL         | Phenmetrazine       | 5.0 ng/mL         |
| MDA                | 5.0 ng/mL         | Phentermine         | 10 ng/mL          |
| MDEA               | 10 ng/mL          | Phenylpropanolamine | 5.0 ng/mL         |
| Methamphetamine    | 50 ng/mL          | Pseudoephedrine     | 5.0 ng/mL         |
| Norpseudoephedrine | 5.0 ng/mL         |                     |                   |

#### Acode 8052B - Postmortem Toxicology - Expanded, Blood (Forensic) - Antemortem Peripheral Blood

-Analysis by Enzyme-Linked Immunosorbent Assay (ELISA) for:

| <u>Compound</u> | <u>Rpt. Limit</u> | <u>Compound</u> | <u>Rpt. Limit</u> |
|-----------------|-------------------|-----------------|-------------------|
| Barbiturates    | 0.040 mcg/mL      | Cannabinoids    | 10 ng/mL          |



CONFIDENTIAL

workorder  
Chain

10301228  
11900788

Patient ID

2015-02925

Page 4 of 4

### Analysis Summary and Reporting Limits:

| <u>Compound</u> | <u>Rpt. Limit</u> | <u>Compound</u> | <u>Rpt. Limit</u> |
|-----------------|-------------------|-----------------|-------------------|
| Salicylates     | 120 mcg/mL        |                 |                   |

-Analysis by Headspace Gas Chromatography (GC) for:

| <u>Compound</u> | <u>Rpt. Limit</u> | <u>Compound</u> | <u>Rpt. Limit</u> |
|-----------------|-------------------|-----------------|-------------------|
| Acetone         | 5.0 mg/dL         | Isopropanol     | 5.0 mg/dL         |
| Ethanol         | 10 mg/dL          | Methanol        | 5.0 mg/dL         |

-Analysis by High Performance Liquid Chromatography/

Time ofFlight-Mass Spectrometry (LC/TOF-MS) for: The following is a general list of compound classes included in this screen. The detection of any specific analyte is concentration-dependent. Note, not all known analytes in each specified compound class are included. Some specific analytes outside these classes are also included.

For a detailed list of all analytes and reporting limits, please contact NMS Labs.

Amphetamines, Anticonvulsants, Antidepressants, Antihistamines, Antipsychotic Agents, Benzodiazepines, CNS Stimulants, Cocaine and Metabolites, Hallucinogens, Hypnotosedatives, Hypoglycemics, Muscle Relaxants, Non-Steroidal Anti-Inflammatory Agents, Opiates and Opioids.